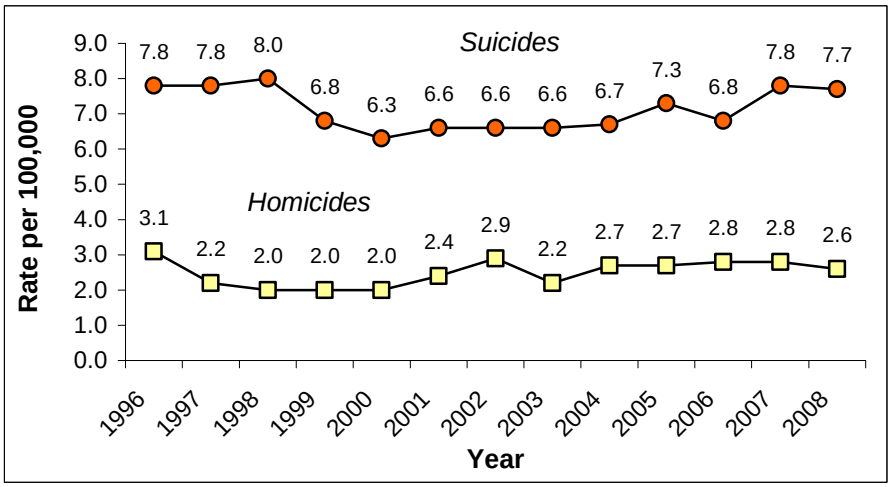
# SUICIDES AND SELF-INFLICTED INJURIES IN MASSACHUSETTS: DATA SUMMARY

*The Injury Surveillance Program, MA Department of Public Health* *August 2010*

This bulletin provides an overview of suicide and self-inflicted injuries among Massachusetts residents. While suicide refers to completed suicides, nonfatal self-inflicted injuries can include suicide attempts and other self-injury such as cutting or burning oneself. There is no way to distinguish actual attempts from non-attempts, so the broader term "self-inflicted" is used here. All rates reported in this bulletin are crude rates with the exception of Figure 4. Age-adjusted rates are used for Figure 4 to minimize distortions that may occur by differences in age distribution among compared groups. The most recently available year of data for each data source was used for this bulletin. Please note that "Hospital Stays" combines hospital discharges with observation stays.

**Figure 1.** Suicide and Homicide Rates[1], MA Residents, 1996-2008




Source: Registry of Vital Records and Statistics, MA Department of Public Health.
[1]Rates presented in this bulletin cannot be compared to bulletins published prior to 2008 due to a change in methodology (see Methods section, page 6 for details).

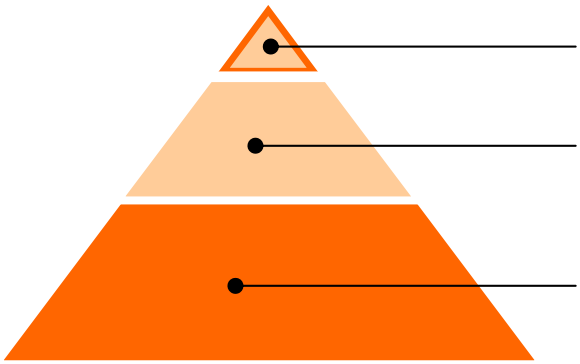
- In 2008, there were 499 suicides among Massachusetts residents; a rate of 7.7 per 100,000 residents.
- The number of suicides was 3 times higher than homicides (N=499 and N=166 respectively) in 2008.
- The suicide rate among MA residents was lower than that of the U.S. In 2007 (the latest statistics available nationally) the suicide rate for the U.S. was 11.5 per 100,000 residents.

**Figure 2.** Magnitude of Suicides and Self-Inflicted Injuries resulting in Acute Care Hospital Stays or Emergency Department Visits, MA Residents, 2008

**186,739**[2]
*In 2009,* Samaritans organizations in Massachusetts responded to over 186,000 crisis calls.

[2] *This number includes repeat callers; individuals who contact the Samaritan hotlines more than once.*

Sources: see Methods section (page 6)

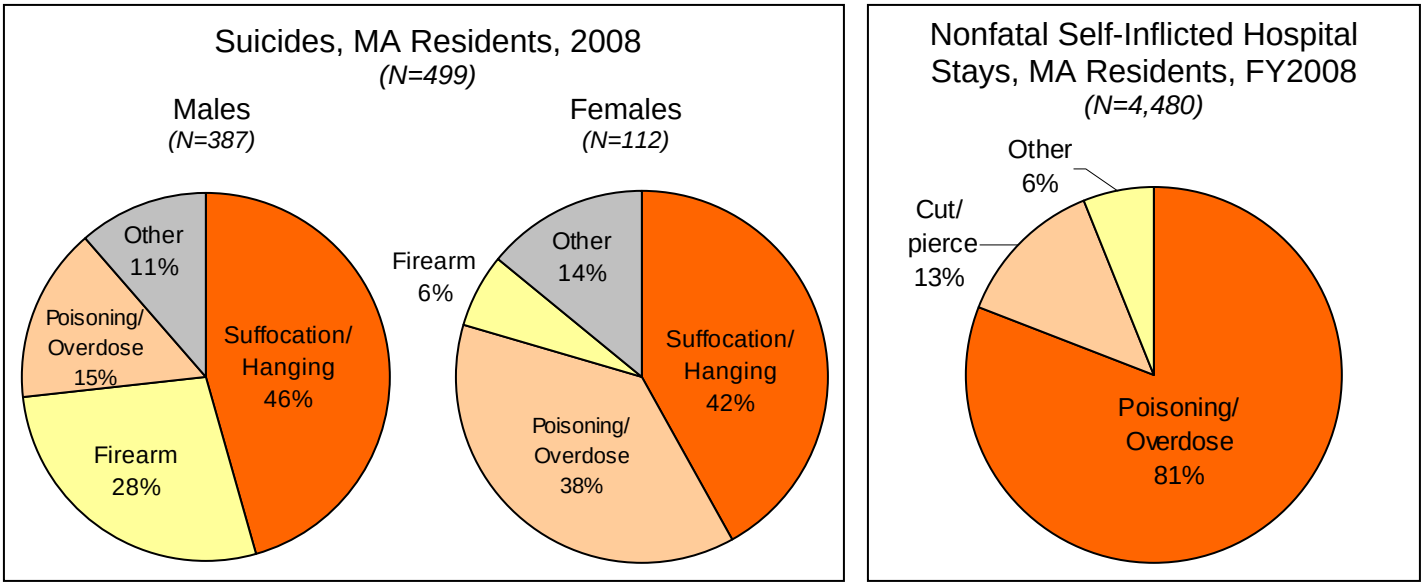


**499**
Completed Suicides (2008)

**4,480**
Hospital Stays for Self-Inflicted Injuries (FY2008)

**6,714**
Emergency Department Visits for Self-Inflicted Injuries (FY2008)

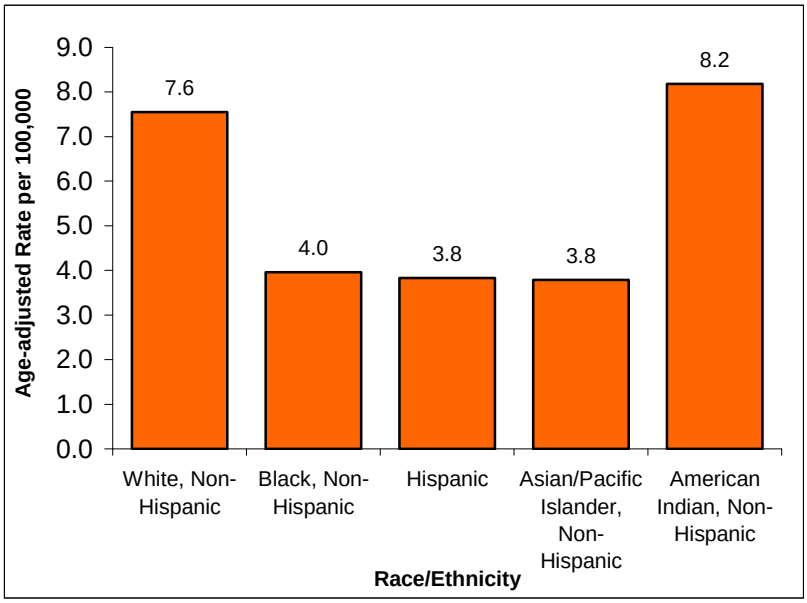
**Figure 3.** Suicides and Nonfatal Hospital Stays for Self-Inflicted Injury by Method, MA Residents, 2008




Sources: MA Hospital Discharge Database and MA Outpatient Observation Stay Database, MA Division of Health Care Finance and Policy

- The leading suicide methods vary proportionally by sex. For males, suffocation (N=176) and firearm (N=108) were the most common methods. For females, the leading methods were suffocation (N=47), followed by poisoning (N=42). Historically, the leading method for females has been poisoning; in 2007, poisoning accounted for 57% and suffocation 27%.
- The leading method of nonfatal self-inflicted hospital stays, however, *did not vary* by sex. Poisoning (81%, N=3,625) was the leading method for *both* males and females.

**Figure 4.** Average Annual Suicide Rates[1] by Race/Ethnicity, MA Residents, 2004-2008 (N=2,338)

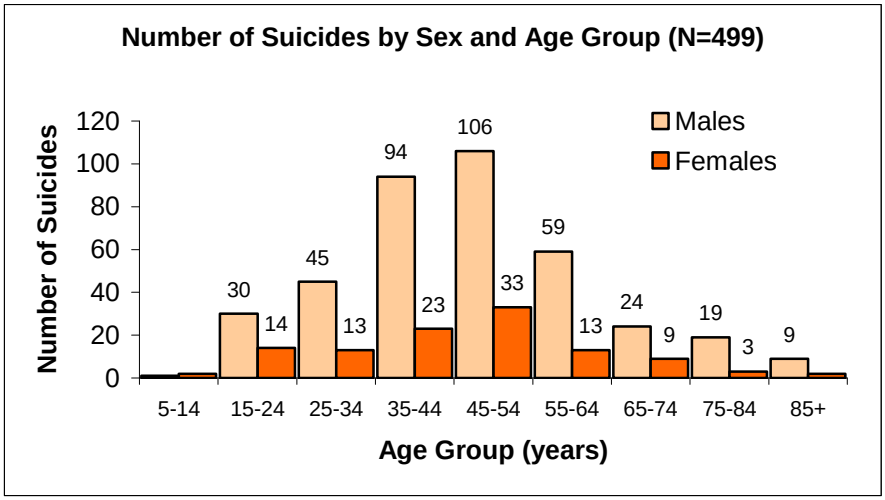


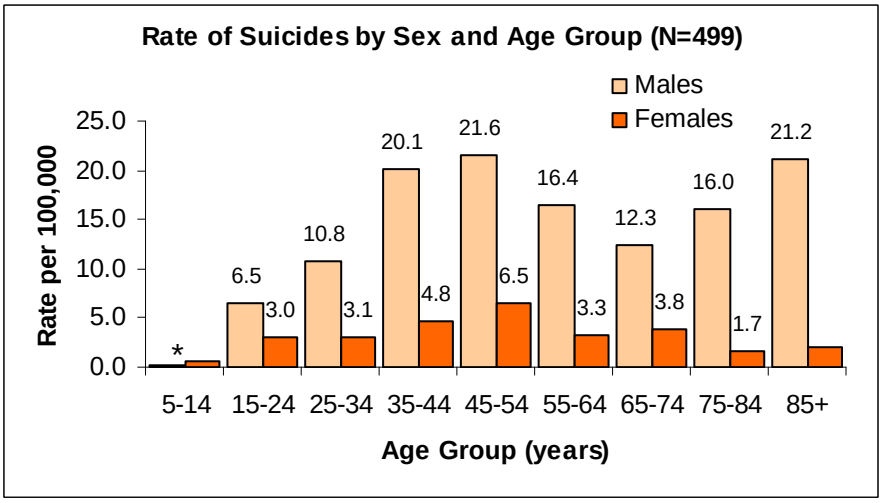

Source: Registry of Vital Records and Statistics, Massachusetts Department of Public Health
*[1]Rates are age-adjusted using the Standard US Census 2000 population. The five most recent years of data were used to improve the stability of the rates.*

- Average annual rates for the time-period 2004-2008 were highest among American Indian, Non-Hispanic residents (8.2 per 100,000, N=6).
- White, Non-Hispanic residents had the second highest rate (7.6 per 100,000, N=2,099), which was statistically higher* than all other race and ethnic groups, with the exception of American Indian, Non-Hispanics.

*Statistically significant at the $p \leq .05$ level. Please refer to the Methods section for an explanation on statistical significance.

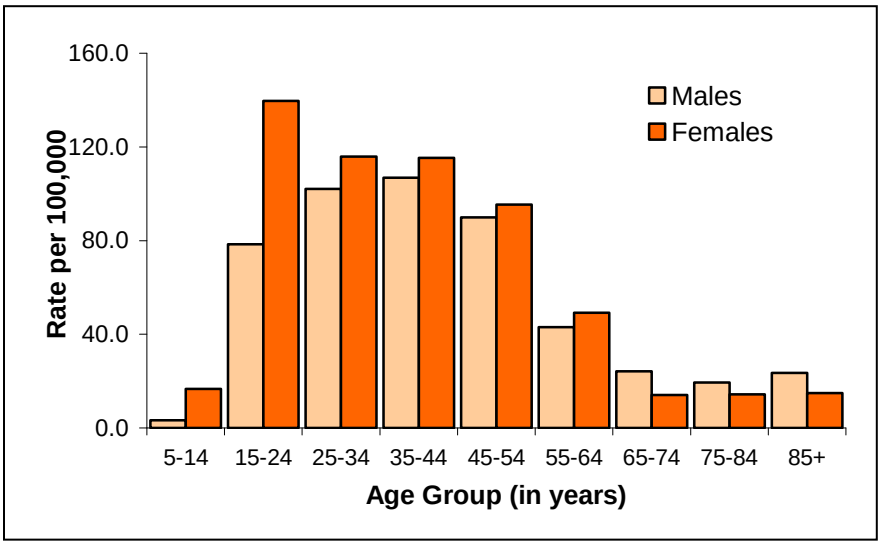
**Figure 5.** Number and Rate of Suicides by Age Group and Sex, MA Residents, 2008




Source: Registry of Vital Records and Statistics, Massachusetts Department of Public Health

**Figure 6.** Rate of Hospital Stays for Self-Inflicted Injury by Age Group and Sex, MA Residents, 2008 (N=4,480)




Sources: MA Hospital Discharge Database and MA Outpatient Observation Stay Database, MA Division of Health Care Finance and Policy

**Suicides:**

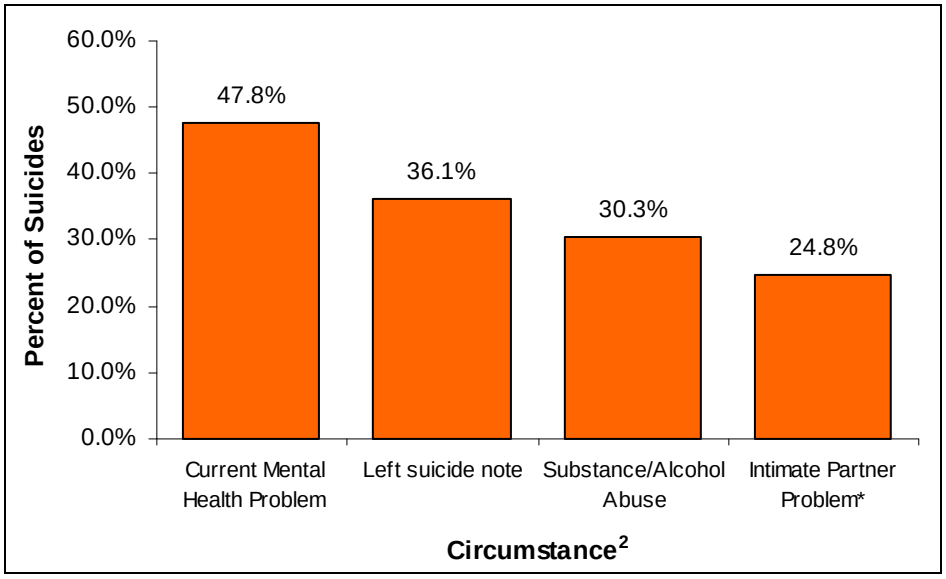
- The number and rate of male suicides exceeded female suicides. In 2008, there were 387 suicides by males (12.3 per 100,000) compared with 106 by females (3.3 per 100,000).
- Most suicides occur in the middle age population; 51.3% of all suicides were among individuals, ages 35-54 years.
- Among males, the highest number and rate of suicides was among those 45-54 (N=106, 21.6 per 100,000).
- Among females the highest number and rate of suicides was among those 45-54 years of age (N=33, rate=6.5 per 100,000).

** Rates not calculated on counts less than 5.*

**Nonfatal Self-Inflicted Hospital Stays:**

- The overall rate of hospital stays for self-inflicted injury among MA residents was 68.9 per 100,000 (N=4,480).
- Females had a higher rate (74.7 per 100,000, N=2,498) than males (62.9 per 100,000, N=1,982).
- Up to the age of 64, females had higher rates of hospitalization for self-inflicted injury than did men.
- Among females, the highest rate was in the 15-24 year age group (139.7 per 100,000, N=646); among males, the highest rate was in the 35-44 year age group (106.9 per 100,000, N=501).

**Figure 7.** Circumstances[1] Associated with Suicide, MA Residents, 2008

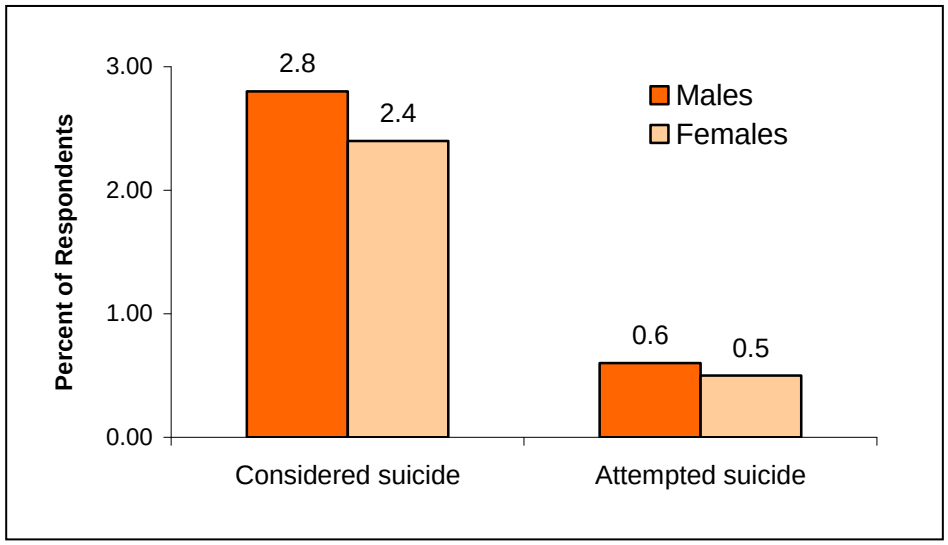



Source: Massachusetts Violent Death Reporting System, Massachusetts Department of Public Health
[1] More than one circumstance may be noted for a suicide.
[2] Intimate Partner Problem refers to any problem with a current or former intimate partner and may or may not involve violence.

Some information on suicide circumstances is available from the MA Violent Death Reporting System, a surveillance system that collects detailed information on homicides, suicides, deaths of undetermined intent, and unintentional firearm deaths from medical examiners, police crime lab, and death certificates. In 2008, among suicides where *at least* one circumstance was documented:

- 48% had a current mental health problem such as depression;
- 36% left a suicide note;
- 30% had a history of substance/alcohol abuse; and
- 25% had current intimate partner problems.[2]

**Figure 8.** Suicidal Thinking and Behavior among MA Residents Ages 18 and Older, 2007-2009

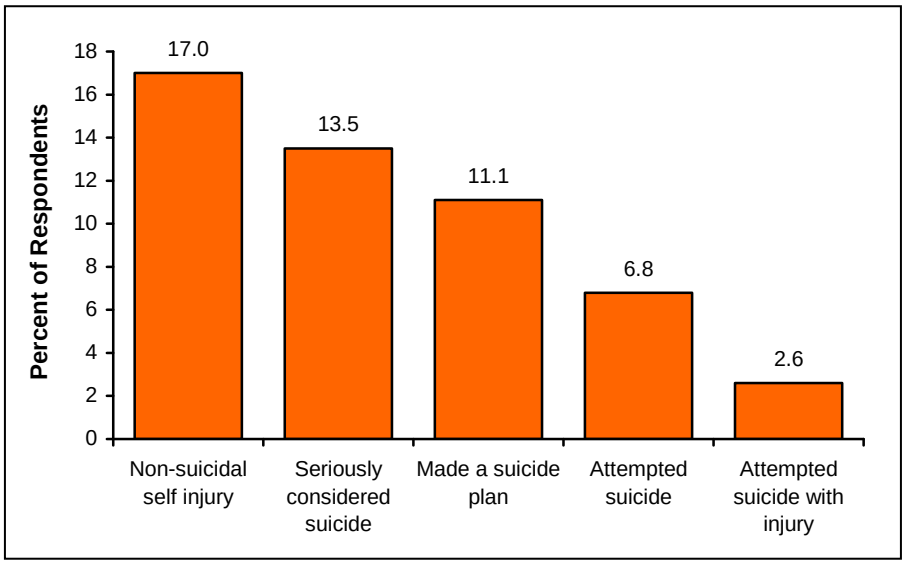



Source: MA Behavioral Risk Factor Surveillance System, Health Survey Program, MA Department of Public Health

Survey findings from the MA Behavioral Risk Factor Surveillance System, an anonymous random digit dialing telephone survey of Massachusetts residents ages 18 and older indicates that between 2007 and 2009:

- 2.6% of MA adults, seriously considered attempting suicide during the past 12 months; 2.8% of males and 2.4% of females.
- 0.6% of MA adults, ages 18 and older, attempted suicide during the past 12 months.

**Figure 9.** Suicidal Thinking and Behavior among MA High School Students, 2009




Sources: CDC, MMWR. *Youth Risk Behavior Surveillance – United States, 2009*. Vol. 59, No. SS-5. June 4, 2010 and the MA Department of Education and MA Department of Public Health, August 2010.

Survey findings from the MA Youth Risk Behavior Survey, an anonymous written survey of youth in public high schools in MA, indicate that in 2009:

- 17% of high school students reported a self-inflicted injury that was not a suicide attempt;
- 13.5% of students seriously considered suicide during the past year, 11% made a suicide plan and 6.8% made an attempt;
- In 2009, 24% of high school students reported feeling so sad or depressed daily for at least two weeks during the previous year that they discontinued usual activities. A significantly larger percentage of females than males reported feeling this way (29.1% vs. 19.2%).

## Resources

For more information on suicide data or to learn more about suicide prevention activities in Massachusetts, please contact:

Injury Surveillance Program
Bureau of Health Information, Statistics, Research, and Evaluation
Massachusetts Department of Public Health
250 Washington Street, 6th Floor
Boston, MA 02108
Phone: 617-624-5648 (general injury)
Phone: 617-624-5664 (MAVDRS)
http://www.mass.gov/dph/isp

Injury Prevention and Control Program
Massachusetts Suicide Prevention Program
Bureau of Community Health Access and Promotion
Massachusetts Department of Public Health
250 Washington Street, 4th Floor
Boston, MA 02108
Phone: 617-624-5544
http://www.mass.gov/dph/injury

Massachusetts Coalition for Suicide Prevention
Phone: 781-223-7369
nlescarbeau@masspreventssuicide.org
www.MassPreventsSuicide.org

24-hour help lines:
Samaritans:
1-877-870-HOPE (4673)
Samariteens:
1-800-252-TEEN (8336)
National LifeLine:
1-800-273-TALK (8255)
TTY: 1-800-799-4TTY (4889)

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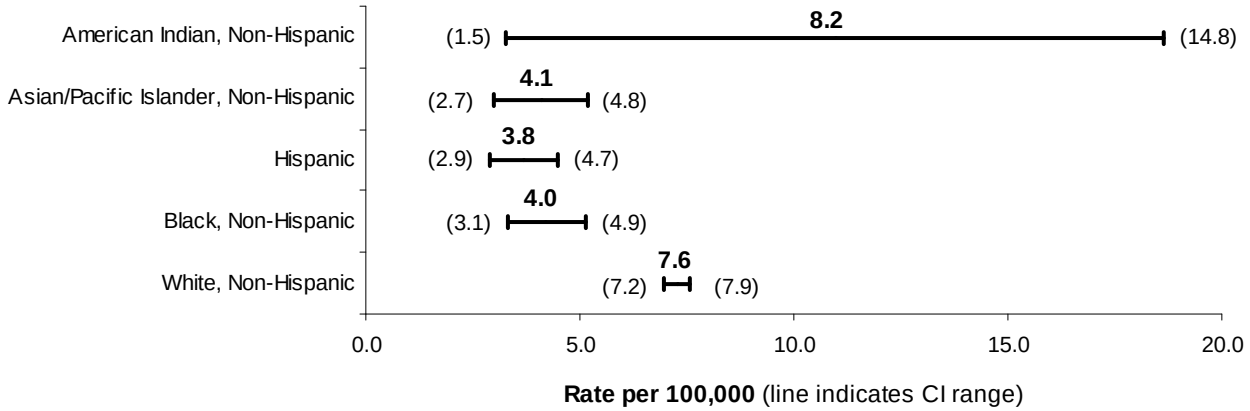
# Methods

General Notes:
All suicides and self-inflicted injuries were ascertained using guidelines recommended by the Centers for Disease Control and Prevention and are based upon the International Classification of Disease codes for morbidity and mortality. All rates reported in this bulletin are crude rates with the exception of Figure 4. Age-adjusted rates are used for Figure 4 to minimize distortions that may occur by differences in age distribution among compared groups. Rates presented in Figure 1 of this bulletin cannot be compared to bulletins published prior to 2008 due to a methodology change. In prior bulletins we excluded ages less than 10 in both the numerator and denominator due to the rarity of children <10 completing suicide. For consistency with other publications we modified our analysis to include all ages for both numerator and denominator. This change results in slightly lower rates.

Data Sources:

- *Death Data (with the exception of Figure 7):* Registry of Vital Records and Statistics, MA Department of Public Health. Data reported are for calendar year. *Death Data (Figure 7 only):* Massachusetts Violent Death Reporting System, MA Department of Public Health. Data reported are for calendar year.
- *Statewide Acute-care Hospital Stays:* Massachusetts Inpatient Hospital Discharge Database, MA Division of Health Care Finance and Policy and Massachusetts Outpatient Observation Stay Database, MA Division of Health Care Finance and Policy. Data reported are for fiscal years (October 1 -September 30). Deaths occurring during the hospital stay and transfers to another acute care facility were excluded from the counts presented. All discharge diagnoses were analyzed to ascertain injury.
- *Statewide Emergency Department Discharges at Acute Care Hospitals:* Massachusetts Emergency Department Discharge Database, MA Division of Health Care Finance and Policy. Data reported are for fiscal years (October 1 -September 30). Deaths occurring during treatment or those admitted to the hospital were excluded from the counts presented. All discharge diagnoses were analyzed to ascertain injury.
- *Suicide Crisis Data:* Samaritans, Inc.; Samaritans of Fall River; Samaritans of Merrimack Valley; Samaritans on the Cape & Islands.
- *MA Youth Risk Behavior Survey:* MA Department of Education, MA Department of Public Health, and CDC MMWR Vol. 59, No. SS-5, June 2010.
- *MA Behavioral Risk Factor Surveillance System:* MA Department of Public Health.
- *Population Data estimates were obtained from MassCHIP* (http://masschip.state.ma.us/).
- *National Data:* U.S. Data: Centers for Disease Control and Prevention, National Centers for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2007 Data) {Accessed 06/24/10}. Available from: www.cdc.gov/ncipc/wisqars

Statistical Significance: A result that is statistically significant is one that is *unlikely* to have occurred by chance alone, and is therefore, *likely* to represent a true relationship between a risk factor such as race, age, or sex and a disease or injury of interest. The confidence interval (CI) is a measure of uncertainty for a given value. It calculates a range with a higher and lower value assigned to a numeric statistical value, such as rate. As a general rule, the CI means that we can be 95% certain that the "*true*" value (e.g., rate) falls within this range.




Statistical significance is influenced in part by the number of cases (N). Typically, a small N provides a large confidence interval (CI) and a large N provides a small CI. If the CI range of one group does not overlap with another group, then the difference in rates for those two groups ***is*** statistically significant. Where the CI does overlap, the rates are not statistically significant. In the figure above White, non-Hispanics have a rate of 7.6 per 100,000 and the CI is 7.2 – 7.9. per 100,000. The CI range for White, non-Hispanics *does not* overlap with the CI ranges for Black, non-Hispanics, Hispanics, and Asian/Pacific Islanders and is therefore statistically significantly higher than those groups. The CI range for American Indian, non-Hispanics (1.5 – 14.8) overlaps with every other race and ethnic group and is therefore ***not*** statistically higher than those groups.

Statistical significance however does not necessarily imply importance and should not be the only consideration when exploring an issue. Because a rate is not "statistically" significant does not mean there is not a real problem that could or should be addressed.